

an uneasy state for several years, and slight eruptions have constantly taken place; but the climax seemed to have been arrived at on the 17th, when Vesuvius changed its mantle of snow for one of fire. As the wind blew furiously from the north-east, the lava descended in the direction of Portici, covering a large portion of the cone and presenting a magnificent spectacle. On the 18th there was less disturbance; but even in its state of greatest activity the mountain made none of those awful efforts which form a grand eruption. There were some local shocks, and a heavy breathing from the furnace, but there was no tremendous explosion. The cup was full, and it flowed over. This flowing over, however, if continued to great excess, may produce far greater disasters than a roaring discharge which finishes the whole business. Prof. Palmieri's reports of Mount Vesuvius state that the present modest eruption has lasted since 1875. It commenced at the bottom of the vast and deep crater left after the eruption of 1872, and was therefore only visible to those who ascended to the summit of the mountain. But now this crater is filled up by the new lava which flowed at successive periods, and therefore the fresh streams which issue from the eruptive cone flow down the external parts of the mountain, generally on the side towards Naples. The new eruptive cone has gradually increased in height until it now protrudes about fifty feet above the edge of the old crater.

WRITING to the *Western Daily Press* under the date of December 22, 1879, Prof. Silvanus Thompson says:—I had the opportunity about half-past ten this morning of witnessing from Clifton Down a phenomenon which enjoys the repute of being very rare. The entire gorge of the Avon was filled with mist, so that the river in the bottom and the Leigh Woods opposite were quite obscured. Standing on the western extremity of the Observatory Hill, I observed a dim gigantic figure apparently standing out through the mist upon one of the lower slopes of Clifton Down, where it runs down in undulating ridges from the promenade towards the river. A moment's glance sufficed to show me that it was my own shadow on the mist, and as I waved my arms about the gaunt spectre followed every movement. A gentleman who stood beside me likewise saw his spectre, but not mine, as we ascertained by the movements executed; nor could I see his, unless we stood so close together that the spectres seemed combined into one. The analogy presented by these spectres with the famous *Spectre of the Broken*, seen by travellers in the level rays of the morning sun from the summit of that celebrated mountain, and described by Sir David Brewster in his "Letters on Natural Magic," is very striking.

A PRIZE of 200*l.* has been offered by the Rev. E. Wyatt Edgell, through the Sanitary Institute of Great Britain, for the best essay that may be sent in by August 1 next, on "The Cause of Hereditary Tendencies in Health and Disease." The subject is of first importance in its bearings not only on personal but on natural health, and the Council of the Institute expects to receive many valuable contributions in competition. It only regrets that the generous donor, who for a long time has filled the office of Honorary Treasurer of the Institute, is obliged to resign office owing to a state of impaired health, which demands for a time residence abroad. The Chairman of Council of the Institute, Dr. Benjamin W. Richardson, F.R.S., and Dr. W. Farr, F.R.S., are appointed adjudicators of the prize.

PROF. F. W. HUTTON, of Dunedin, New Zealand, has been appointed to fill the new Chair of Biology in the Canterbury College at Christchurch. In consequence of this move the Chair of Natural Science in the Otago University is vacant. We have not heard what steps are being taken to fill it.

A REMARKABLE anthropological discovery has recently been made at Sypniewo, near Marienwerder (Prussia), by Herr Wilckens. In a bronze cauldron which was imbedded in the

ground several feet deep, were found calcined human bones (apparently both male and female), a golden hoop, an open necklace with hook and eye, two square sticks of greenish glass with marks on them, similar to the eyes of dice, twenty button-like ball segments without holes, four bronze plates, and fragments of some metal implements evidently burnt with the bodies. The articles seem to be of old Etruscan or Phœnician workmanship, and are now in the hands of the Historical Society of Marienwerder.

"WATER ANALYSIS," by Prof. Frankland, a long-promised contribution to an important question, will be published during January, by Mr. Van Voorst.

IN reporting the reception of Prof. Nordenskjöld and the staff of the *Vega* at Nagasaki, the correspondent of the *North China Herald* notes that there was not a single case of scurvy during the whole voyage. This, he learns, was owing to the free use of a curious little berry that springs out of the eternal ice and snow during the short summer; it bears profusely, and has a taste like the raspberry, but more acid. The fruit is dried, and then mixed with the milk of the reindeer, and it can be carried in a frozen state for thousands of miles. There was also used a curious kind of food made from the whale's hide, which is pickled and eaten freely during the winter.

THE additions to the Zoological Society's Gardens during the past week include a Yellow Conure (*Conurus solstitialis*) from Guiana, received in exchange; a Vulpine Phalanger (*Phalangista vulpina*), a Geoffroy's Dove (*Peristera geoffroyi*), bred in the Gardens.

#### GEOGRAPHICAL NOTES

THE eminent Russo-German traveller, Dr. Wilhelm Junker, well known by his successful tours in the Nile districts, left Cairo for Chartum on December 1. He travels *via* Suez and Suakin, and hopes during the present winter to reach the Upper Nile districts beyond Chartum. This time the Monbuttu land will form the basis of his operations, and he intends to penetrate into the interior in the direction of the Congo or the Schari rivers.

DR. GERHARD ROHLFS has arrived at Rome on his return from North Africa.

THE expedition charged with the investigation of the question whether it is possible to conduct the waters of the Amu Daria into the Caspian Sea has started from St. Petersburg. General A. J. Gluchowski is commander of the Expedition, and M. Holmstrom acts as chief engineer. MM. Bole, Svichtchoff, and Macsimovich are assistant engineers. Prince Gedroitz takes part in the expedition in the capacity of geologist. These gentlemen will be joined by Capt. Roop, from Turkestan, and by Engineer Hellmann, from the Caucasus. The company will first proceed to the delta of the Amu Daria, and then begin the investigation of the river's course and of the surrounding territory, with regard to elevation, geology, &c., &c. It is considered that two or three years will be necessary for collecting the materials to finally decide the question.

PROF. BASTIAN has arrived at Batavia. He has made important ethnological and anthropological researches in Assam, and has also brought together a valuable collection of illustrative specimens. He then continued his studies in the Padang Islands, and will now do the same on the island of Java.

THE Geographical Society of Hamburg has elected the well-known author of numerous descriptions of travels, cities, and countries, Herr Ernst von Hesse Wartegg, as a corresponding member.

THE Archbishop of Algiers has received from Zanzibar favourable reports of the eighteen missionaries who left Algeria last June and had reached Ugogo, as also of the missionaries sent out last year for Tanganyika. The latter had lost their superior, Père Pascal, but had arrived at Ujiji and had been well received there by the English mission and the Arab chiefs. They had explored Urundi, a rich region, which they depict in altogether different colours from Stanley, and by invitation of

the Sultan of Bikari they had established a station, commencing operations by rescuing abandoned infants. The Abbé Debaize, on the other hand, had been twice deserted by his porters, had been plundered of a great part of his outfit, and had returned sick and discouraged to Ujiji, where the Algerian and English missions were nursing him. It was not known whether he would recommence the exploration intrusted to him by the French Government.

THE death is announced of Prof. Wappæus, of Göttingen, an industrious German geographer.

THE newly-established Geographical Society of Rochefort has just issued the first number of their *Bulletin*, the more noteworthy contents of which are a paper by M. L. Delavaud on the Portuguese in Central Africa before the seventeenth century, and another by M. Silvestre on Indo-China.

### ON THE HETEROSTYLISM OF "*MELOCHIA PARVIFOLIA*"

*MELOCHIA PARVIFOLIA*, H.B.K. (nova gen. et spec., pl. v., 325) is a very common plant on the dry plains in the neighbourhood of Caracas, where it flowers nearly all the year round, and not only in the month of January, as Kunth says in his description, which in all other respects is a very complete and good one. I was led to notice the heterostylism of this plant when comparing carefully Kunth's words with a specimen I had brought home. Humboldt's specimen belonged to the long-styled form, for Kunth says:—*Stamina petalis dimidio breviora*, *Styli longitudine petalorum*. Mine was short-styled, so that I found these proportions to be inverse. I searched immediately our *sabanas* (or plains) for long-styled plants, and came at once across a considerable number of both forms. A comparison of their flowers gives the following result:—

#### Short-styled Flowers.

1. Stamens as long as the petals.
2. Styles scarcely half as long as the stamens.
3. Stigmata with few and short papillæ.
4. Styles without stellate hairs.
5. Pollen grains:—
  - a. Dry, globular, diam. 0.044 mm.
  - b. In water, globular, diam. 0.060 mm.
  - c. In alc. abs., globular, diam. 0.036 mm.

#### Long-styled Flowers.

1. Stamens half as long as the petals.
2. Styles as long as the petals.
3. Stigmata with many and rather long papillæ.
4. Styles with stellate hairs.
5. Pollen grains:—
  - a. Dry, elliptical, obtusely triangular in cross-section, diam. 0.044 × 0.024 mm.
  - b. In water, globular, diam. 0.052 mm.
  - c. In alc. abs., elliptical, diam. 0.040 × 0.028 mm.

(My measurements were made with a glass micrometer by Oberhäuser, five divisions of which are equal to 0.02 millimetres for the enlargement I used.)

It would appear that the protoplasm of the pollen-grains of the short-styled form contains a larger percentage of water, their size shrinking more in alcohol than that of the pollen-grains of the long-styled form.

Although the heterostylism of *Melochia parvifolia* might be fairly admitted from the stated morphological differences, I was desirous to try by experiments whether there was also a functional difference, as Darwin and Hildebrand have done in the case of other heterostyled plants.

Both forms of *Melochia parvifolia* seem to be equally common in our flora. This I ascertained in the following manner:—On the *Sabana de San Lázaro*, where this plant constitutes all the higher vegetation, together with *Turnera ulmifolia*, *Pavonia cancellata*, and *Elyptis suaveolens*, all the plants of *Melochia* were examined in a square, the side of which was 100 steps. There were altogether forty-two plants, twenty with long-styled flowers, and twenty-two with short-styled ones. In one single plant of the former two short-styled flowers were discovered, in all the rest each plant had only one kind of flower. I collected seeds from both forms, and began last year my experiments by sowing them in cases placed in one of the yards of my house in town. This circumstance was perhaps of some consequence, the yard being surrounded by walls 12 feet high, so that there could be next to nothing of the influence of the wind, just the reverse as in the open field.

Ten seeds taken from plants with long-styled flowers produced eight plants, which this year flowered, all the flowers being long styled ones.

Ten seeds of the short-styled form gave nine plants; two of these perished before setting flowers; the remainder produced in due time a large number of short-styled blossoms.

The last summer was very rainy, thus not at all favourable to experimental research connected with artificial fecundation. However, I tried my best, and obtained the results given in the following table, which is constructed according to Darwin's models in his "Forms of Flowers":—

| Nature of union.                                                     | Number of flowers fertilised. | Number of capsules produced. | Average number of seeds per capsule. | Percentage of capsules in reference to flowers. |
|----------------------------------------------------------------------|-------------------------------|------------------------------|--------------------------------------|-------------------------------------------------|
| a. Long-styled form by pollen of short-styled ... ..                 | 12                            | 12                           | 5 <sup>1</sup>                       | 100                                             |
| b. Long-styled form by own-form pollen, from a distinct plant        | 10                            | 8                            | 3.5                                  | 80                                              |
| c. Long-styled form by pollen from the same flower <sup>2</sup> ...  | 6                             | 1                            | 5                                    | 16.6                                            |
| d. Short-styled form by pollen of long-styled ... ..                 | 12                            | 12                           | 5                                    | 100                                             |
| e. Short-styled form by own-form pollen from a distinct plant ... .. | 10                            | 9                            | 3.3                                  | 90                                              |
| f. Short-styled form by pollen from the same flower <sup>3</sup> ... | 8                             | 6                            | 4                                    | 75                                              |
| Cases a and d together (legitimate unions) .. ..                     | 24                            | 24                           | 5                                    | 100                                             |
| Cases b and e together (illegitimate unions) ... ..                  | 20                            | 17                           | 3.4                                  | 85                                              |
| Cases c and f together (illegitimate unions) ... ..                  | 14                            | 7                            | 3.6                                  | 50                                              |

I think the favourable influence of cross-fertilisation is evident, as in no other case the average number of seeds per capsule reached the normal number, although there were some few capsules in the other crops which also contained five seeds.

In the open field the flowers of *Melochia parvifolia* are visited by large numbers of small hymenoptera, which fly about during the hottest hours of the day, when these flowers are open. They have no particular smell, and fade very soon; on cloudy or rainy days they do not open at all, so that not a few wither before getting fertilised, which accounts for the considerable number of seedless capsules to be found on nearly every plant.

The seeds of my crop appeared to be of good quality (their specific weight being greater than that of water). I have sown them already in separate lots, in order to find out how far they will germinate and produce strong and healthy plants, and which forms of flowers these latter will have.

A. ERNST  
Caracas, November 2

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—Next term, at Cambridge, practical anatomy in the dissecting-room will commence on January 17. The professor of anatomy is to be assigned (as to his fellowship) to King's College, and not to Caius, as originally proposed; it was thought more advisable not to assign two professorial fellowships in medical science to Caius, but rather to divide the association. Prof. Paget is especially fitted to receive further honour from Caius College, and we trust he will ultimately attain the mastership.

Prof. Newton announces that his lectures will recommence on February 2; and the demonstrator will take an advanced class on Sauropsida, beginning on the same day.

<sup>1</sup> Normal number of seeds in *Melochia parvifolia*.

<sup>2</sup> The plant was left to itself, foreign pollen being excluded by a fine muslin-bag tied around it. The numbers show that self-fertilisation was difficult in this case; though in the open field, where the wind has its full sway, it may be much easier, and perhaps more frequent.

<sup>3</sup> The plant was treated as stated in the foregoing note. Self-fertilisation is no doubt easier in this case, but the result of the crop was not very good.